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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,051	11/14/2003	Tomoyuki Yambe	14521	9045

293 7590 11/22/2005

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EXAMINER

WYSZOMIERSKI, GEORGE P

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/712,051

Applicant(s)

YAMBE ET AL.

Examiner

George P. Wyszomierski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/30/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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1. Claims 2, 4, 6, 9, 11, 13, 15, 17 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 depends from claim 1, and recites "further including the two-way shape memory alloy and the temperature controlling device." However, the shape memory alloy and the temperature controlling device appear to be integral parts of the device as claimed in claim 1. Thus, it is unclear how or whether the scope of claim 2 would be any different or narrower than that of claim 1. Claims 4, 6, 9, 11, 13, 15, 17 and 19 depend from claim 2 and recite the same limitations as claims 3, 5, 7, 10, 12, 14, 16 and 18 respectively; thus a similar analysis can be made of these claims.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 8, 9 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Maynard (U.S. Patent 5,405,337).

Maynard discloses a device which includes a plurality of shape memory alloy materials in what appears to be fine wire shape, wrapped around a tubular material and individually connected to electrical switches that enable one to individually heat or cool the shape memory materials so that a given portion of the tubular material is constricted or expanded by the action of the shape memory materials upon heating and cooling. Thus, all aspects of the claimed invention are held to be fully met by Maynard.

4. Claims 1-7, 12, 13, and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Grummon (U.S. Patent 6,260,818).

Grummon discloses a device including a plurality of shape memory materials in the form of plates, surrounding a tubular conduit and individually connected to electric current in such a manner that the shape memory materials can be individually heated and cooled, thus causing desired portions of the tubular conduit to be open or constricted and thereby permitting fluid flow in a desired direction. Thus, all aspects of the claimed invention are held to be fully met by Grummon.

5. Claims 1-7 and 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Sieminski et al. (U.S. Patent 6,342,314).

Sieminski discloses a device including a plurality of rings of shape memory alloy material surrounding a tubular passageway and individually connected to an electrical current, such that each ring may sequentially expand and contract and cause air to be moved through the passageway; see Sieminski column 13, line 48 to column 14, line 19. Sieminski column 14, lines 3-4 states that the effect "resembles the peristaltic effect created by the muscular contraction and relaxation of intestines". Thus, all aspects of the claimed invention are held to be fully disclosed by Sieminski et al.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maynard.

Maynard, discussed supra, does not disclose the sequential movement limitations as presently claimed. However, Maynard indicates that the shape memory material in the prior art device is controlled by decode and driver circuitry which permits highly dexterous maneuvers in three-dimensional space. Such would include sequential movements, i.e. sequentially heating and subsequently cooling the shape memory material in a generally linear direction along the tubular material which would result in the presently claimed sequential movement. Thus, a prima facie case of obviousness is established between the disclosure of Maynard and the presently claimed invention.

8. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maynard.

Claims 8-11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grummon.

Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieminski et al.

The prior art does not appear to disclose any specific examples of devices in which the shape memory alloys are in the particular shapes as recited in the instant claims. This difference is not seen as resulting in a patentable distinction between the prior art and the claimed invention because clearly one of skill in the art would be able to construct shape memory materials in the shapes as claimed by the prior art methods. For example, the Maynard reference forms the shape memory materials in grooves on a silicon wafer. Clearly,

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such grooves can be produced in the form of a coil, plate or ring. Further, the function of the material is the same regardless of its shape, i.e. the prior art utilizes the large amount of reversible deformation that occurs upon heating and cooling a shape memory alloy in order to alternately constrict and open the flow path inside a tubular member, as does the present invention. Thus, a prima facie case of obviousness is established between the disclosures of Maynard, Grummon, or Sieminski et al. and the presently claimed invention.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. Effective July 15, 2005, all patent application related correspondence transmitted by facsimile must be directed to the new central facsimile number, (571)-273-8300. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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GPW

November 17, 2005